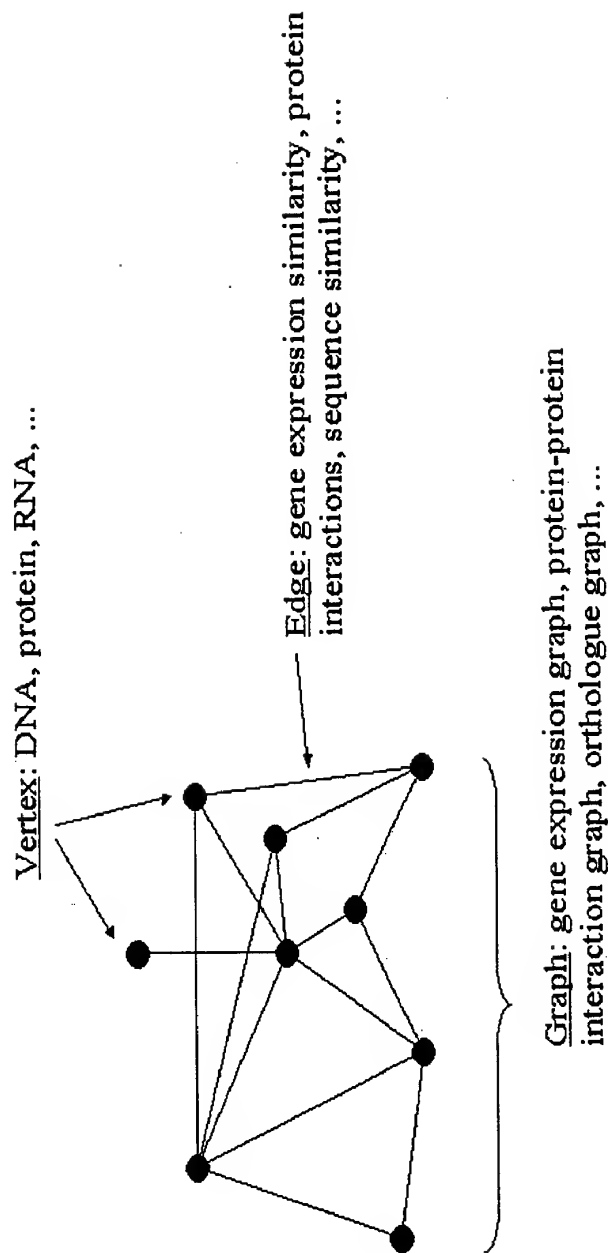


# FIG. 1



404420 8E60T660

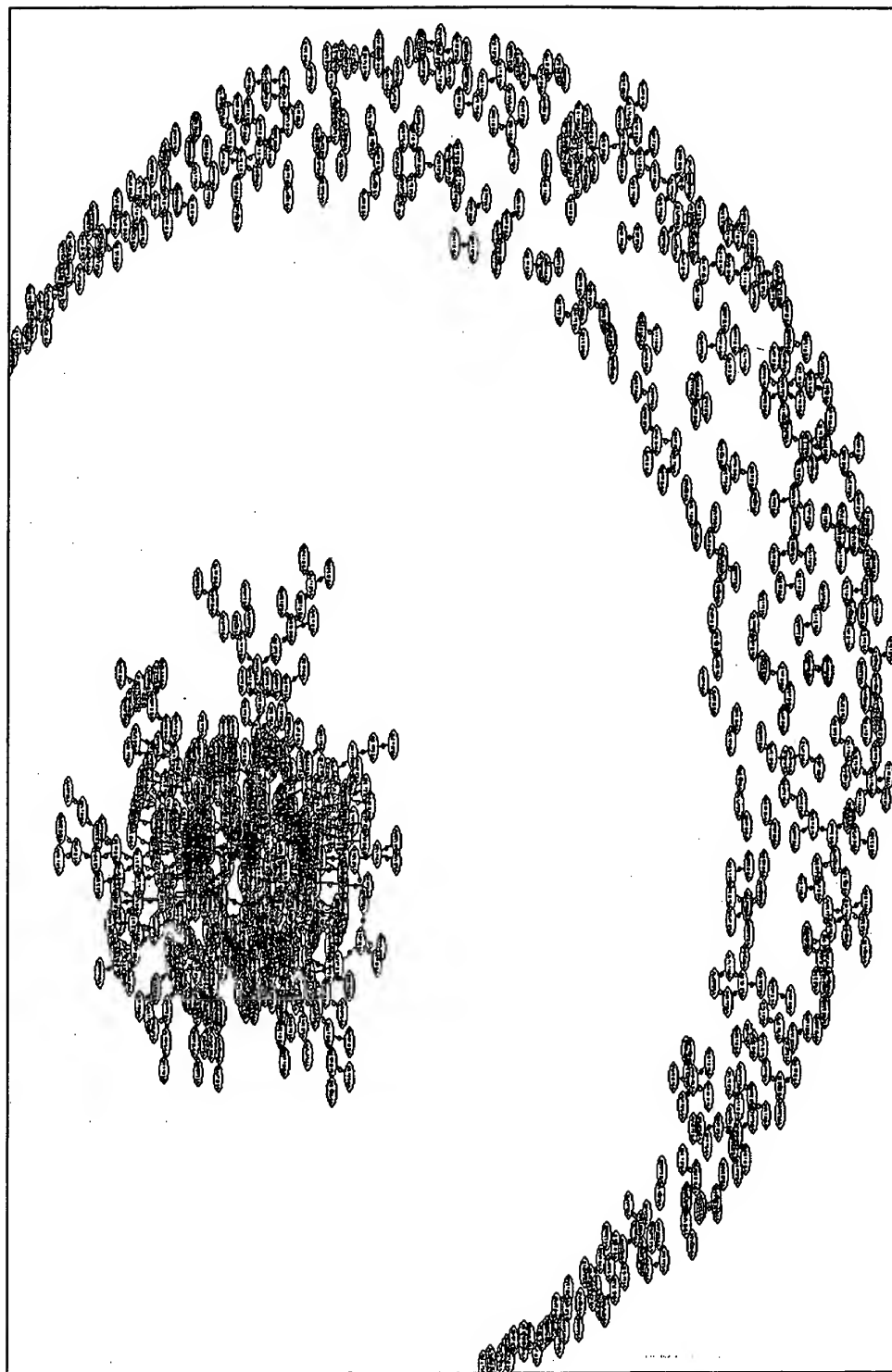


FIG. 2

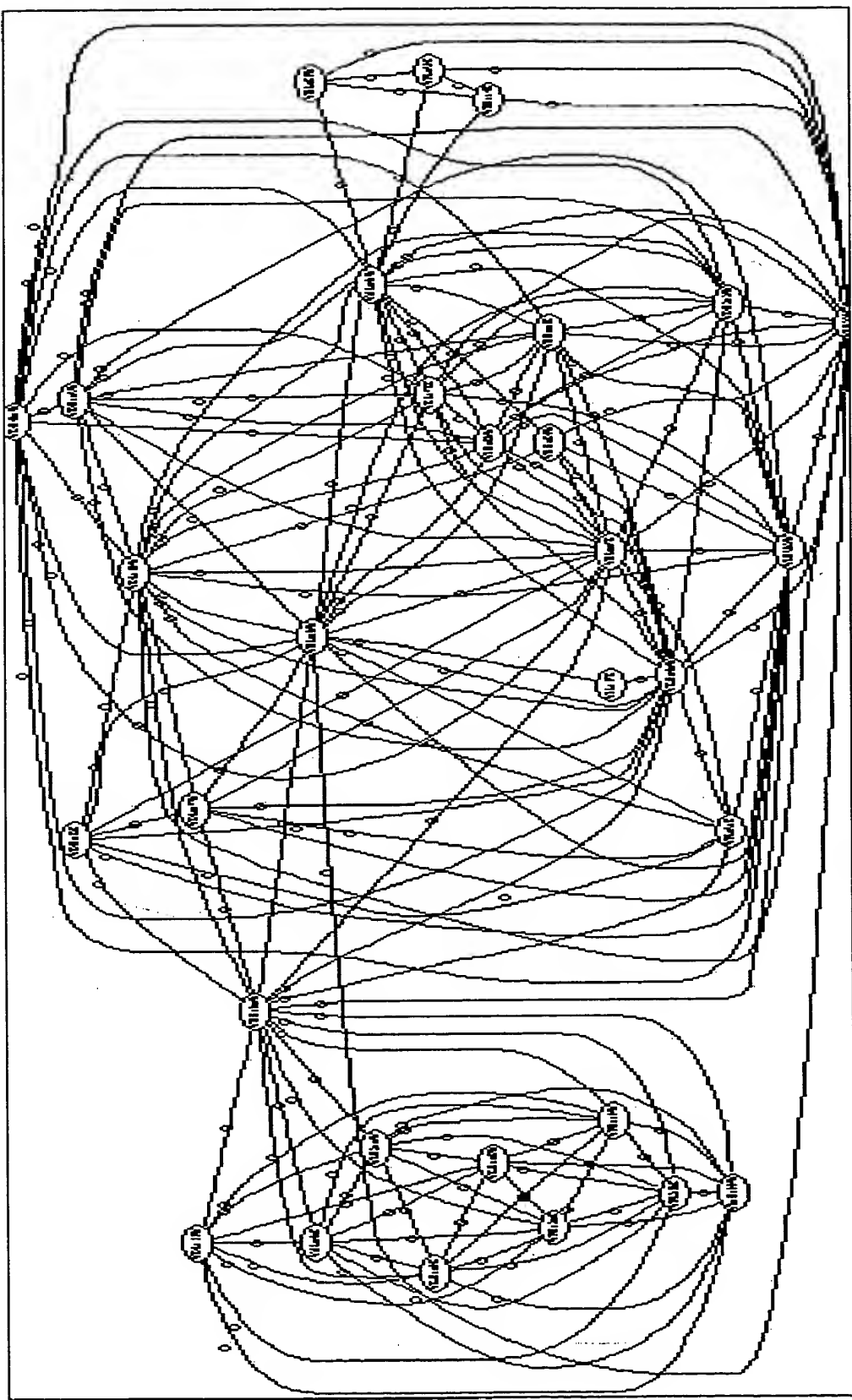


FIG. 3

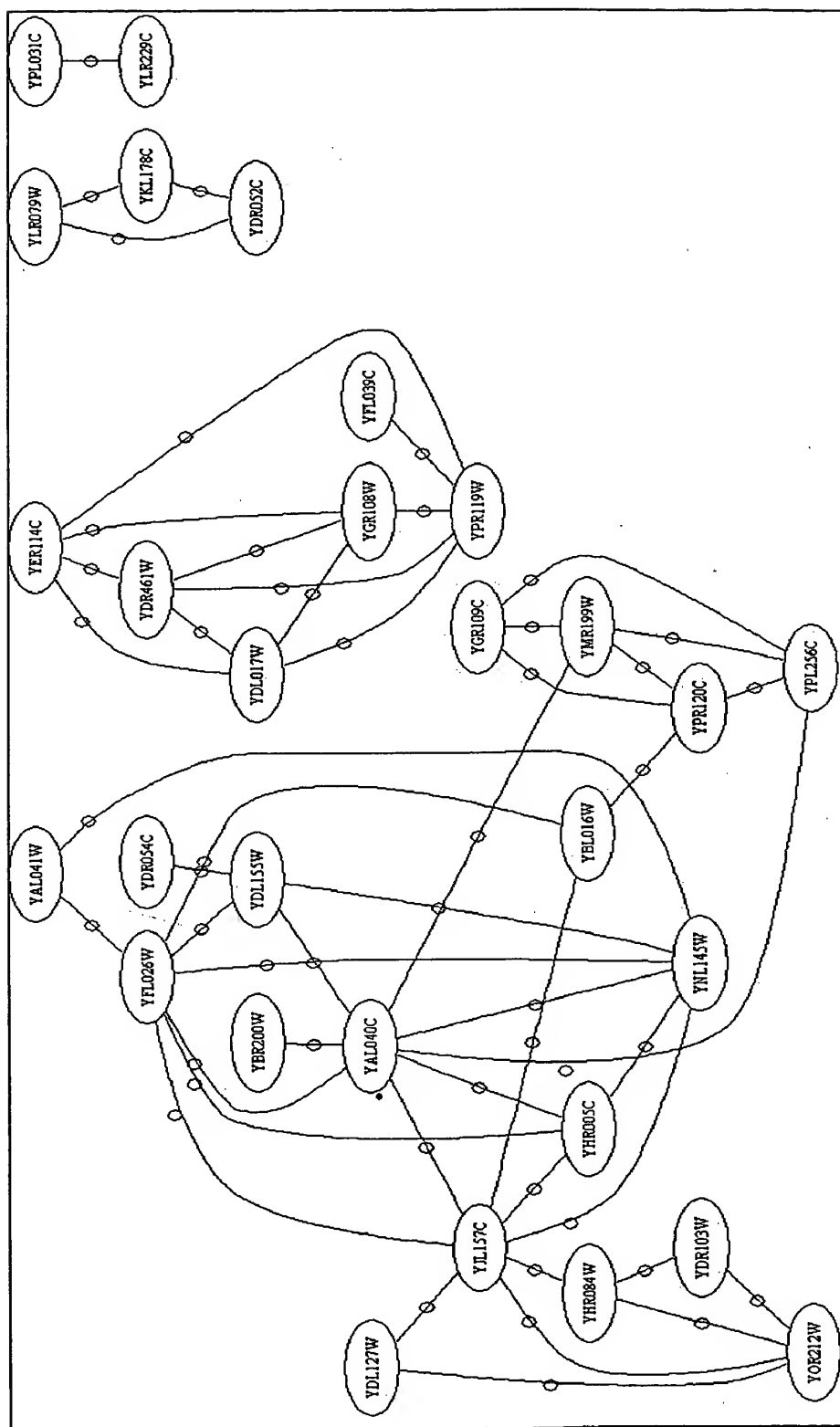
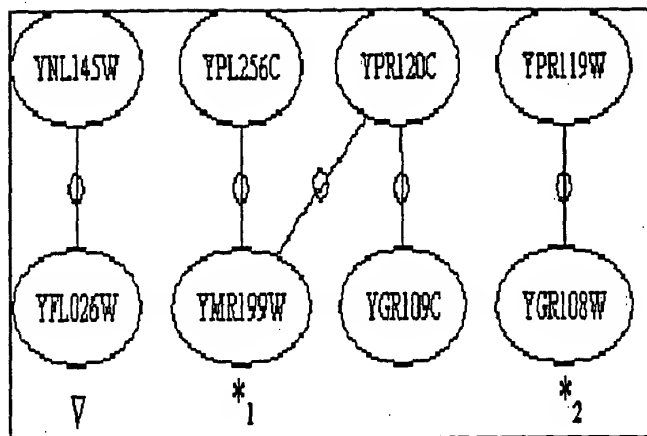
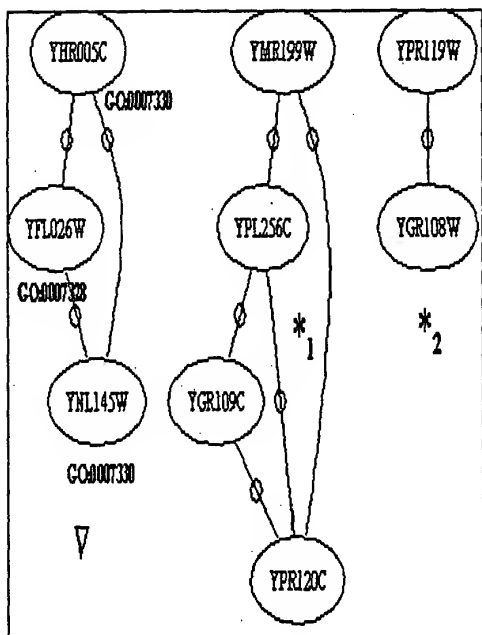


FIG. 4

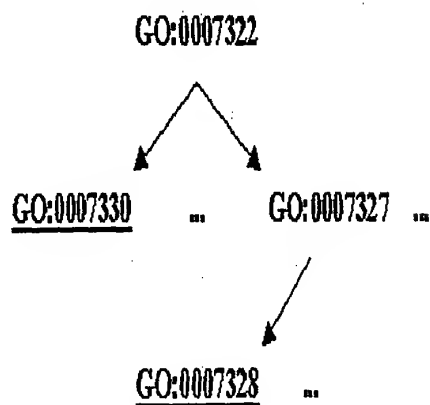
**B**



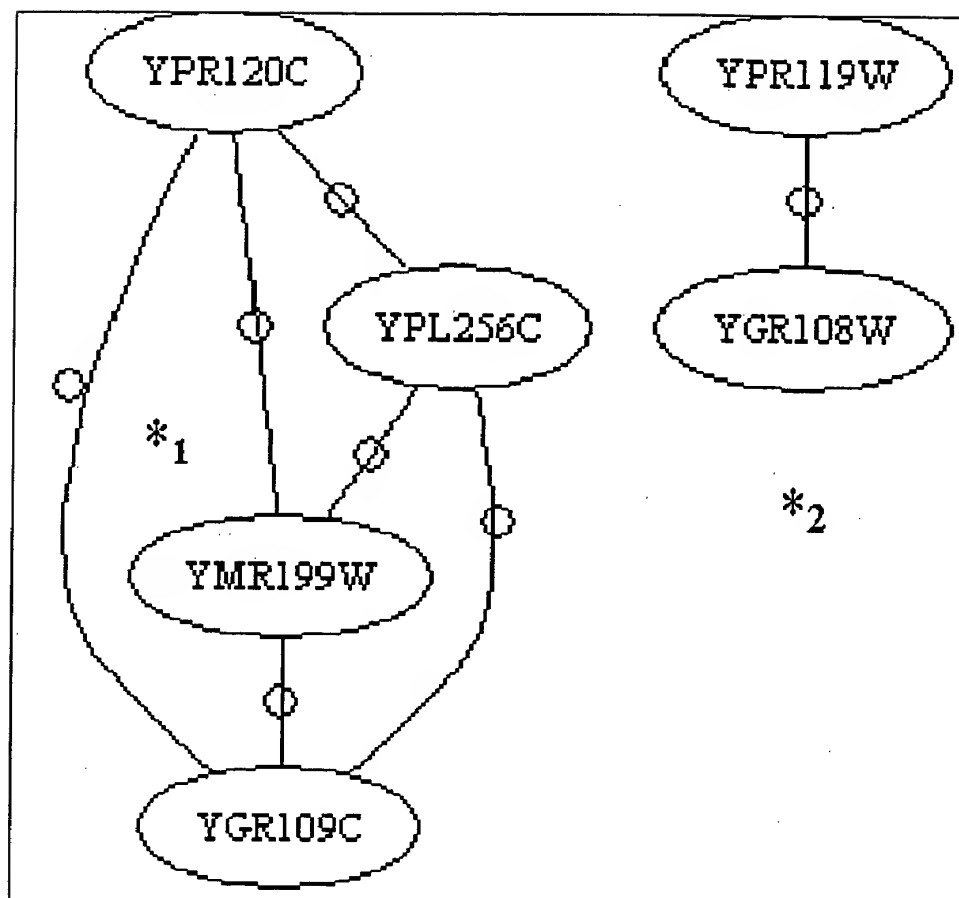
**C**



**E**



**FIG. 5**



**FIG. 5A**

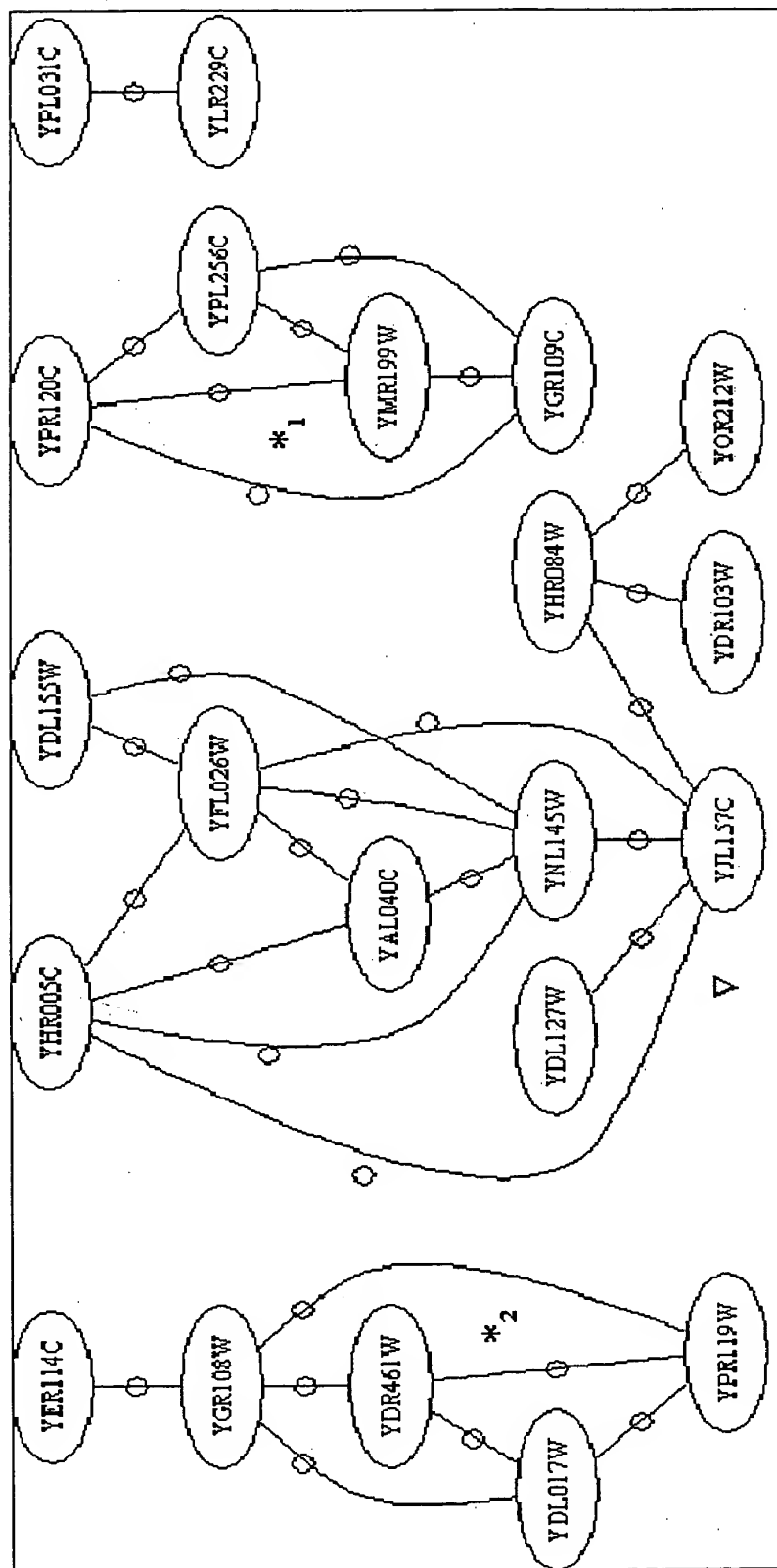
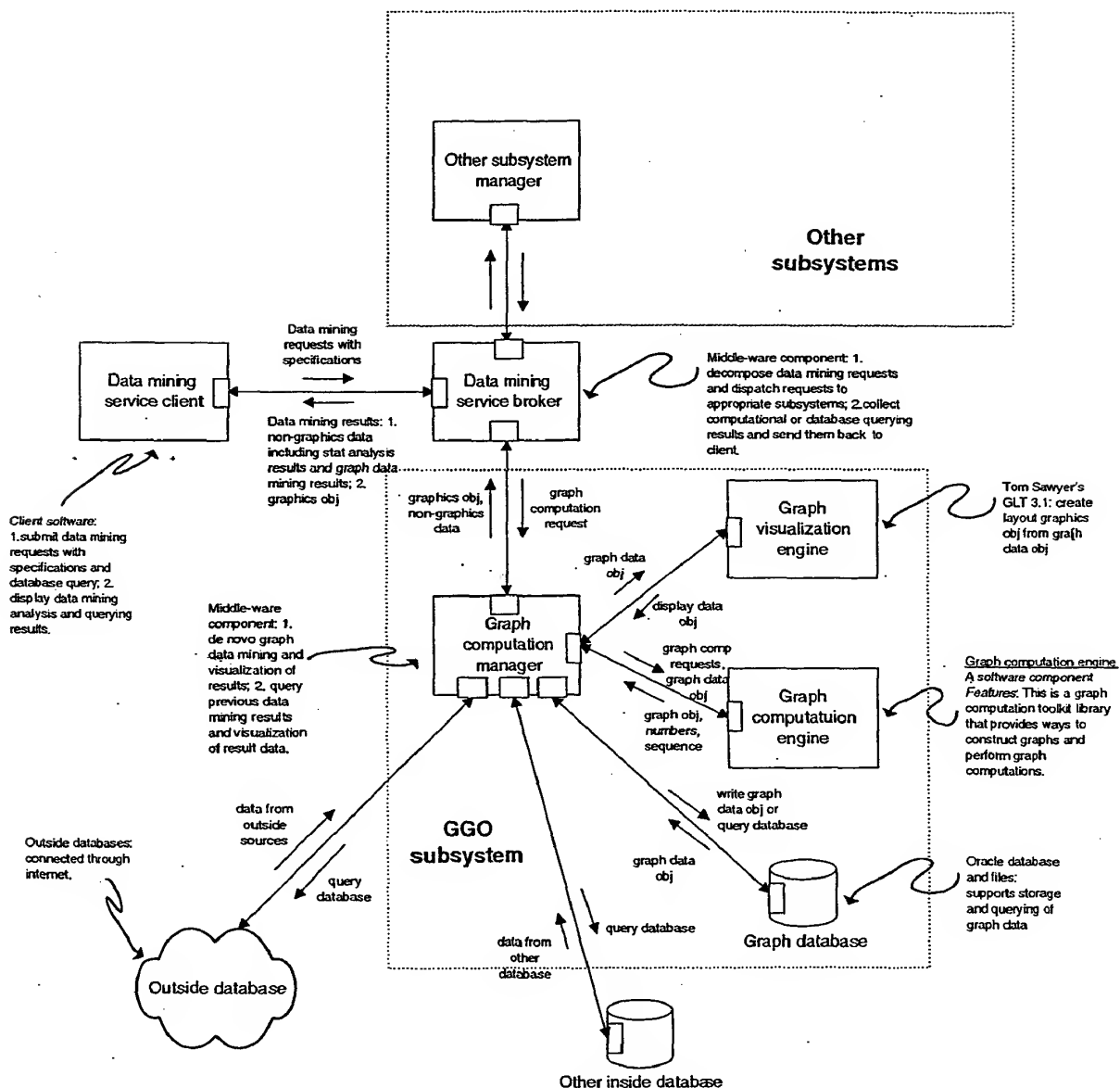


FIG. 5D

## Conceptual Design of Data Mining System: An Overview



# FIG 6



# Data mining service client

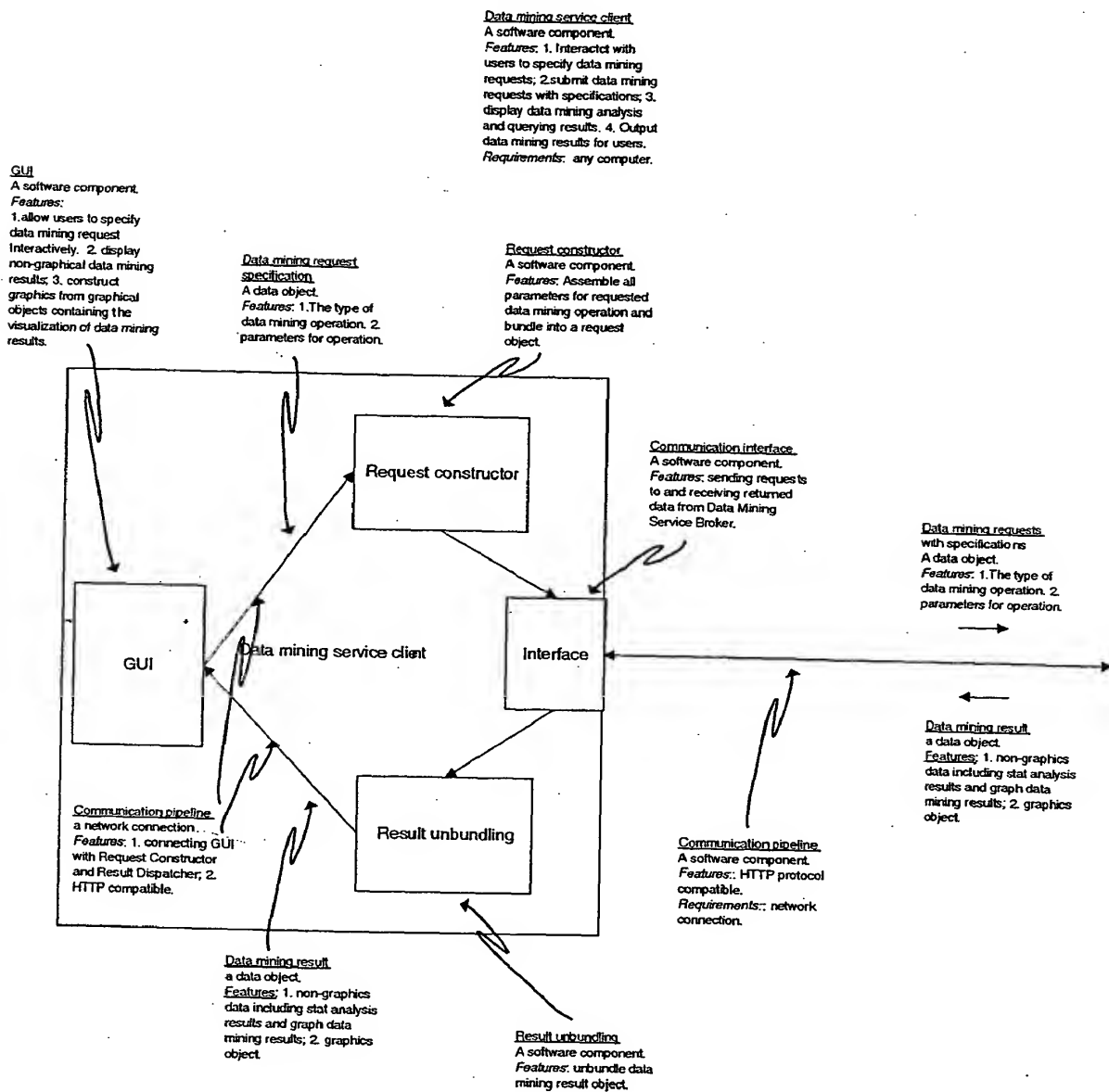
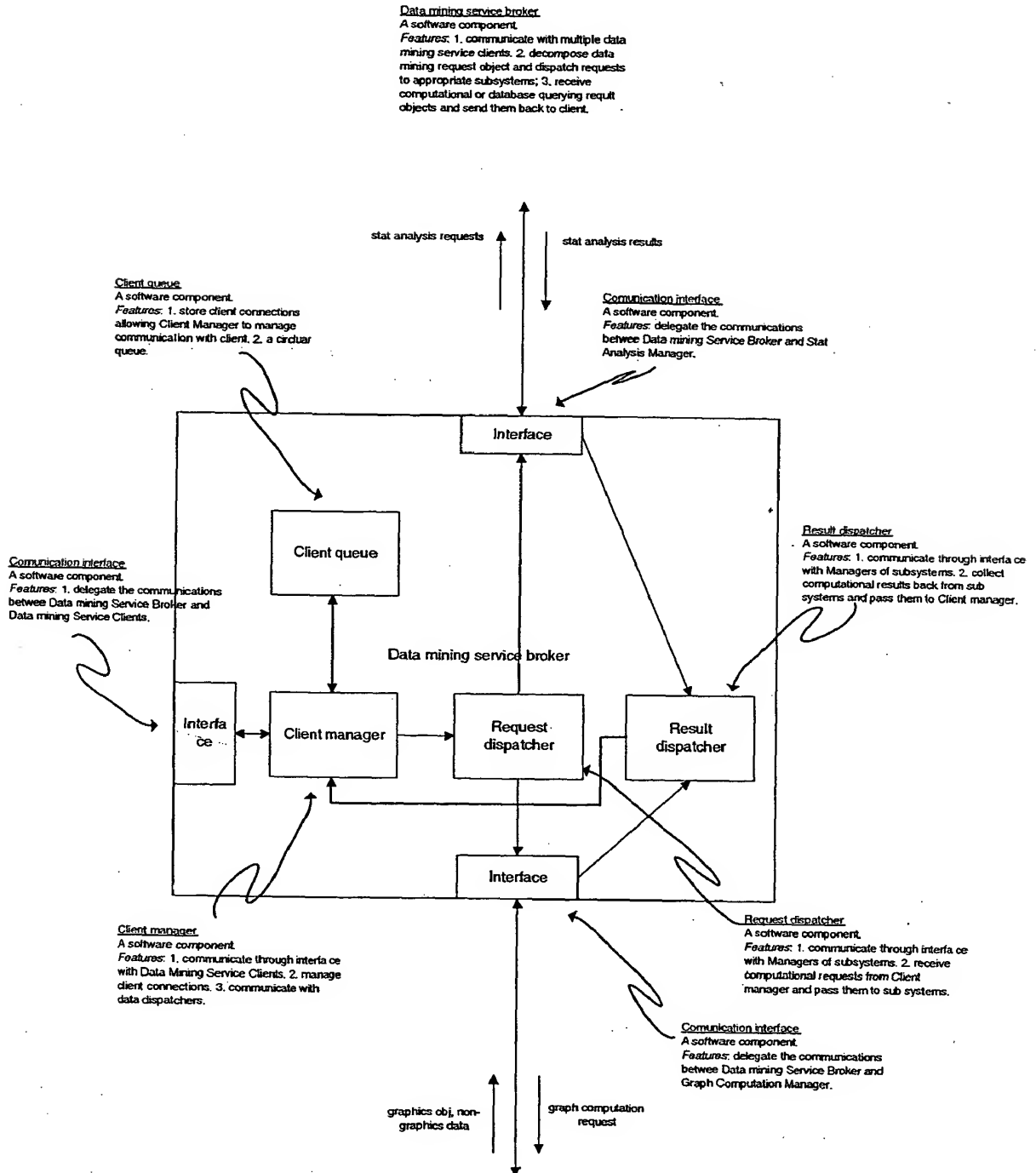


FIG 7

# Data mining service broker



**FIG 8**

# Graph computation manager

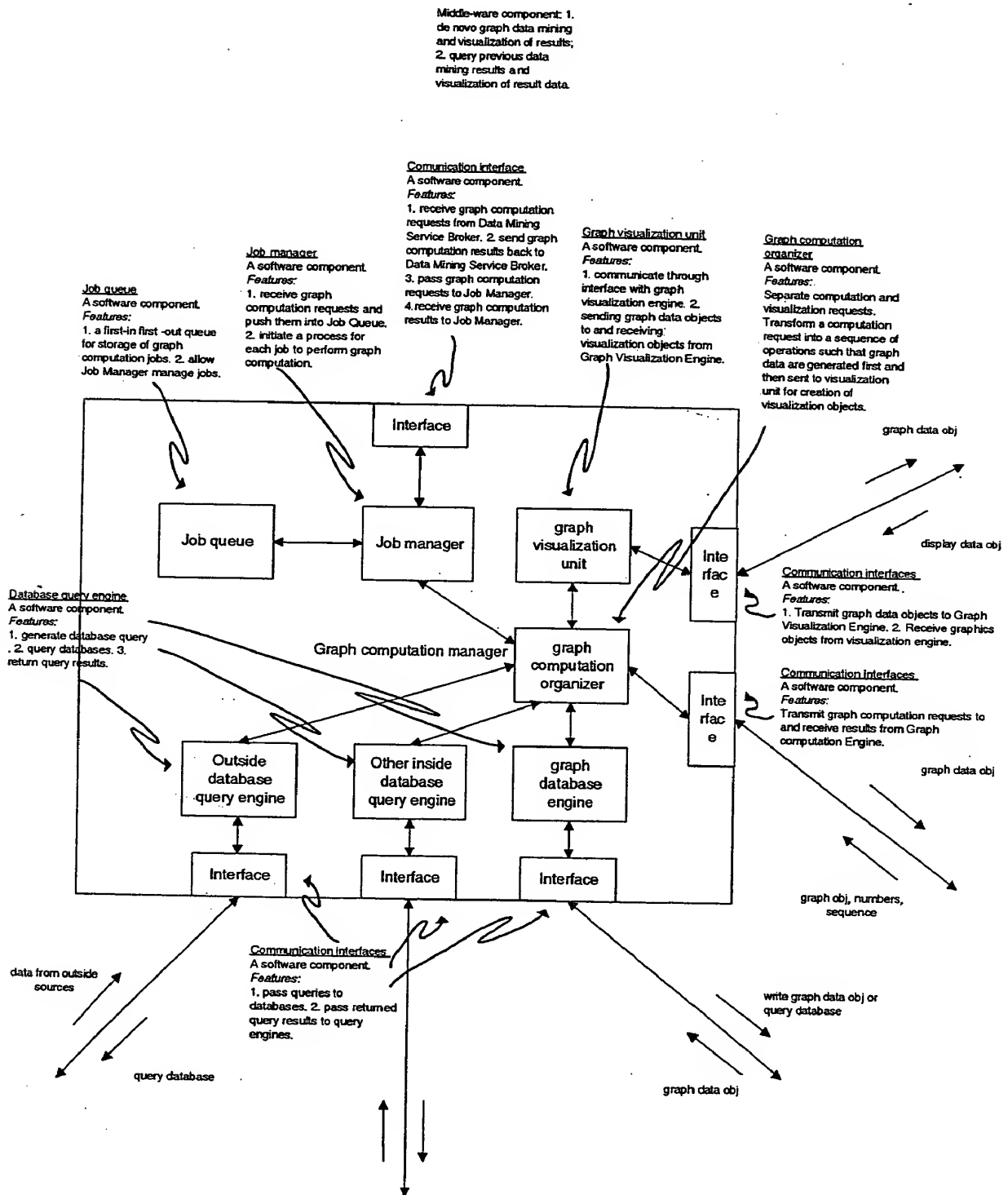


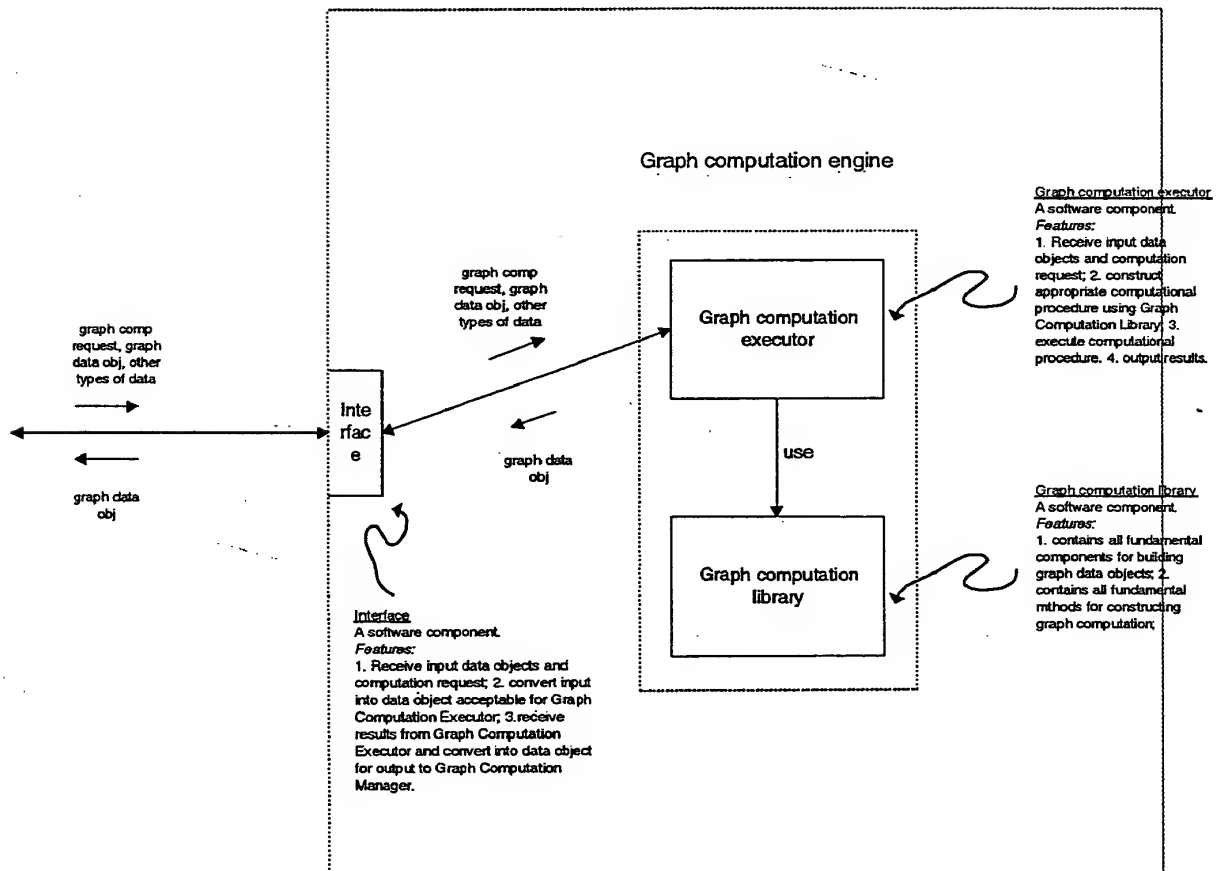
FIG 9

## Graph computation engine

### Graph computation engine

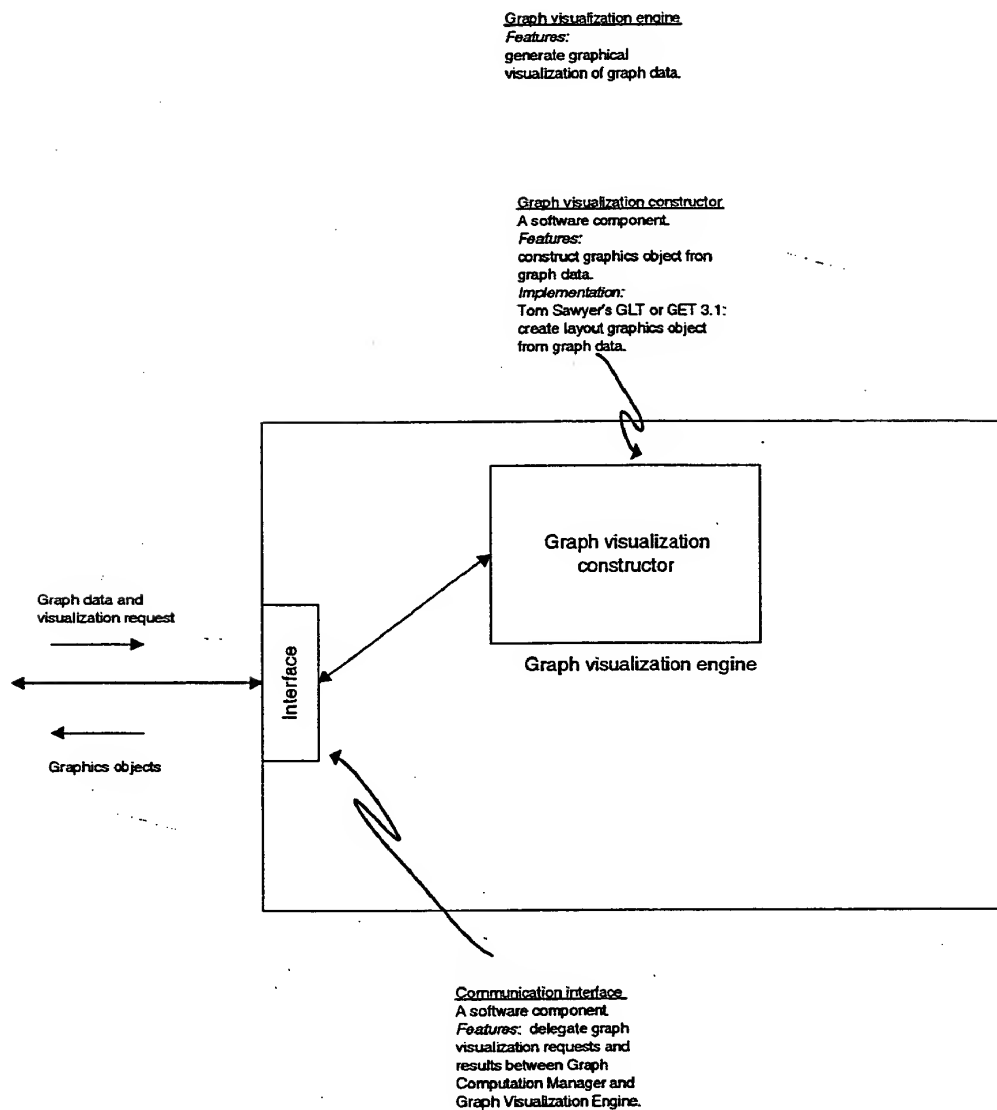
A software component

*Features:* This is a graph computation toolkit library that provides ways to construct graphs and perform graph computations.



# FIG 10

## Graph visualization engine

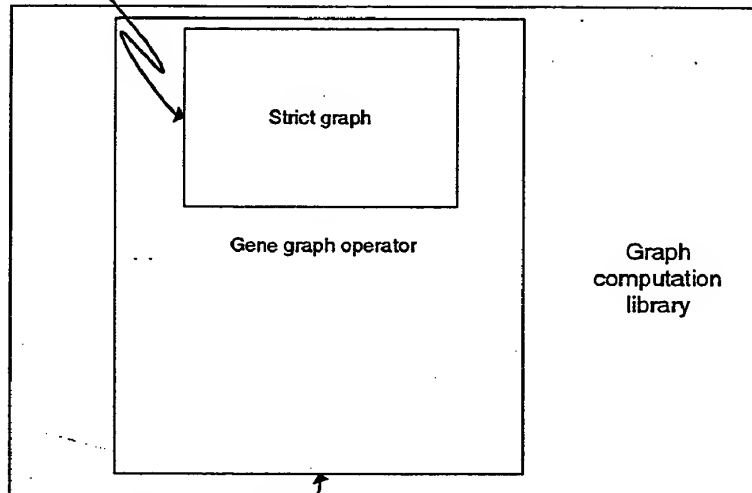


# FIG 11

## Graph computation library

Graph computation library  
A software component.  
Features:  
1. contains all fundamental components for building graph data objects; 2. contains all fundamental methods for constructing graph computation; 3. contains all fundamental methods for building gene graph objects.

Strict graph  
A software component.  
Features:  
1. Provides all representations for graph data objects. 2. Provides all methods for computation of graph objects.



Gene graph operator  
A software component.  
Features: 1. Provide representations for all types of gene graphs. 2. Delegate the underlying graph representation and computation to Strict Graph component.

# FIG 12

## Data interface

### Data interface

A software component.

#### *Features:*

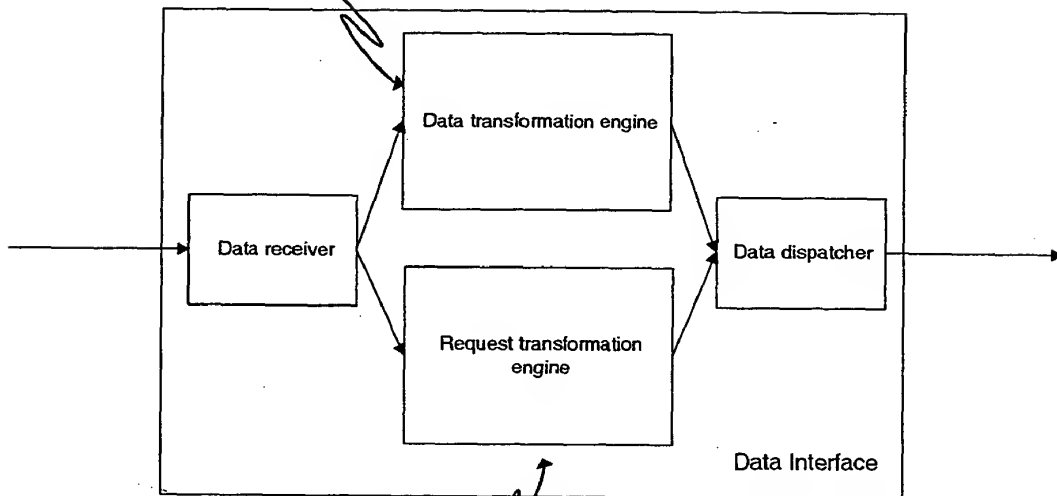
1. Receive, transform, and output computational request data objects;
2. Receive, transform, and output graph data objects.

### Data transformation engine

A software component.

#### *Features:*

Transform graph data objects so that graph data can be converted from a source format into a destination format.



### Request transformation engine

A software component.

#### *Features:*

Transform computational request data objects so that requests can be converted from a source format into a destination format.

# FIG. 13

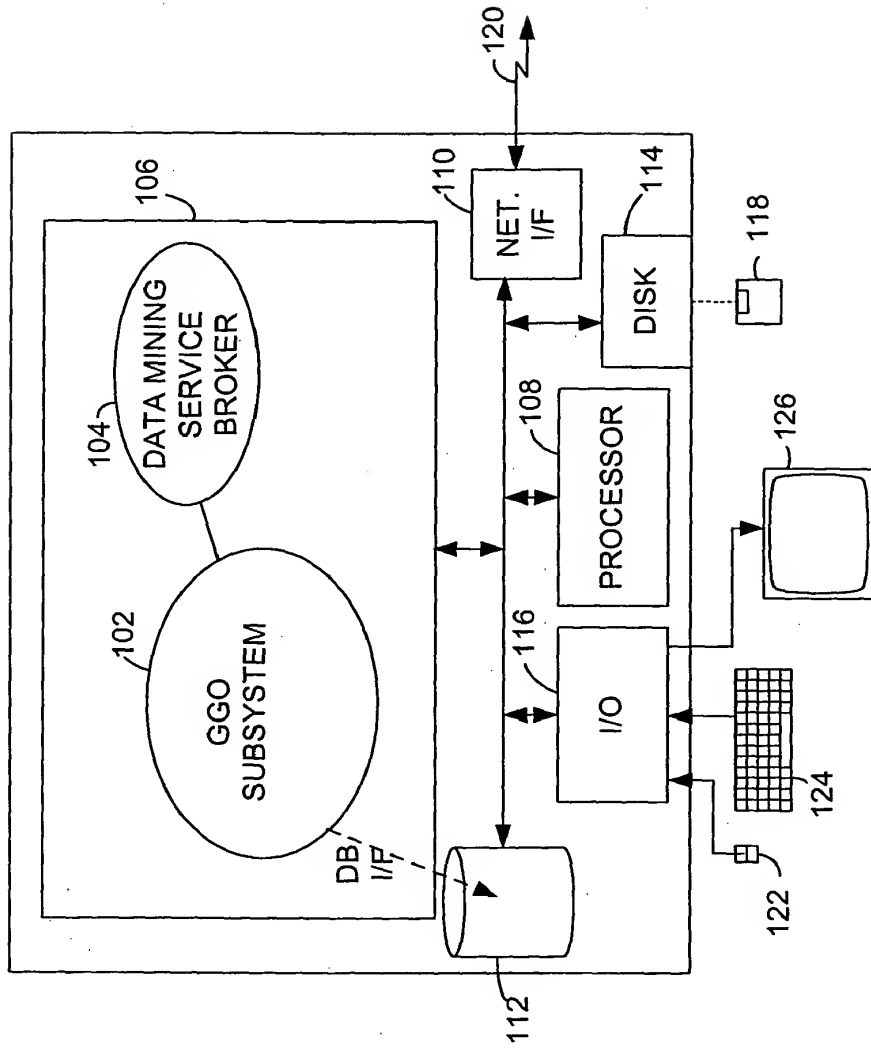


FIG. 14



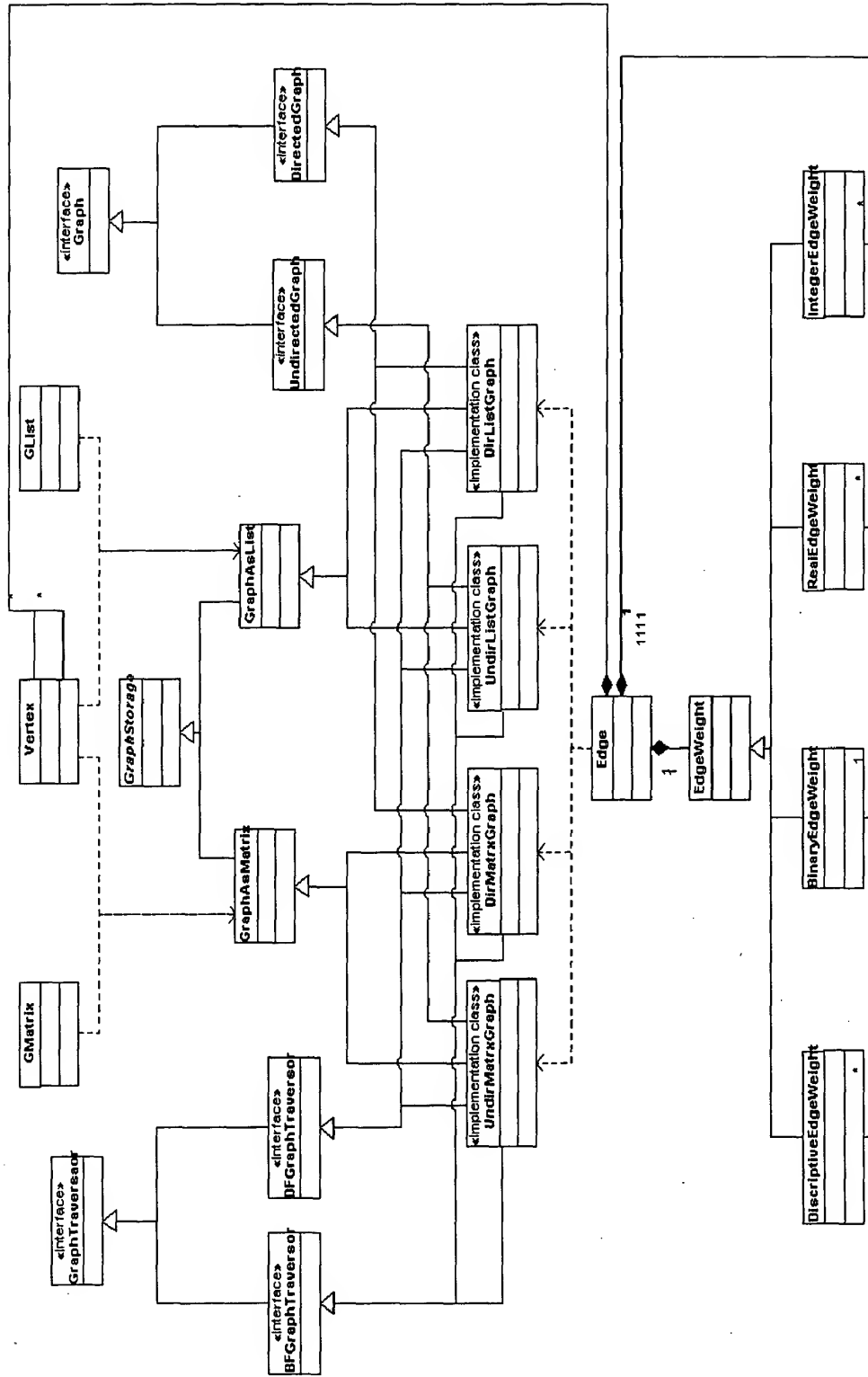


FIG 15